



Los Angeles County Employees Retirement Association

Actuarial Valuation of Retirement Benefits June 30, 2017

Prepared by:

Mark C. Olleman, FSA, EA, MAAA

Nick J. Collier, ASA, EA, MAAA

Craig Glyde, ASA, EA, MAAA

Julie D. Smith, FSA, EA, MAAA

Milliman, Inc.
1301 Fifth Avenue, Suite 3800
Seattle, WA 98101-2605
Tel +1 206 624 7940
milliman.com



1301 Fifth Avenue
Suite 3800
Seattle, WA 98101-2605
USA

Tel +1 206 624 7940
Fax +1 206 623 3485

milliman.com

December 20, 2017

Board of Investments
LACERA
300 North Lake Avenue, Suite 820
Pasadena, CA 91101-4199

Dear Members of the Board:

As requested, we have performed an actuarial valuation of retirement benefits for the Los Angeles County Employees Retirement Association (LACERA) as of June 30, 2017 to be used in determining the contribution rates effective July 1, 2018. The major findings of the valuation are contained in this report. This report reflects the benefit provisions and contribution rates in effect as of June 30, 2017, and LACERA's Funding Policy that was adopted in December of 2009 and amended as of February 2013, as well as the three-year phase-in of the employer contribution rate that was adopted at the December 2016 Board of Investments meeting. It should be noted that under the amended Funded Policy, the reserve value for STAR benefits is included in the Valuation Assets for 2014 and future valuations; however, the liability for any potential STAR benefits that may be granted in the future is not included in this valuation.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by LACERA's staff. This information includes, but is not limited to, statutory provisions, employee data, and financial information. In our examination of these data, we have found them to be reasonably consistent and comparable with data used for other purposes. Since the valuation results are dependent on the integrity of the data supplied, the results can be expected to differ if the underlying data is incomplete or missing. It should be noted that if any data or other information is inaccurate or incomplete, our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for LACERA have been determined on the basis of actuarial assumptions and methods that are individually reasonable (taking into account the experience of LACERA and reasonable expectations); and that, in combination, offer a reasonable estimate of anticipated experience affecting LACERA. Further, in our opinion, each actuarial assumption used is reasonably related to the experience of the Plan and to reasonable expectations, which, in combination, represent a reasonable estimate of anticipated experience for LACERA.

This valuation report is only an estimate of LACERA's financial condition as of a single date. It can neither predict LACERA's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of benefits, only the timing of contributions. While the valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct. Determining results using alternative assumptions (except the +/- 0.5% results shown at the end of the Executive Summary) is outside the scope of our engagement.

This work product was prepared solely for LACERA for the purposes described herein and may not be appropriate to use for other purposes. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work. Milliman recommends that third parties be aided by their own actuary or other qualified professional when reviewing the Milliman work product.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the Plan's funded status); and changes in plan provisions or applicable law. Due to the limited scope of our assignment, we did not perform an analysis of the potential range of future measurements. The Board of Investments has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in Appendix A of this report.

Actuarial computations presented in this report are for purposes of determining the recommended funding amounts of LACERA. The calculations in the enclosed report have been made on a basis consistent with our understanding of LACERA's funding requirements as stated under their Funding Policy, with a modification to reflect the three-year phase-in of the employer contribution rate change due to the new assumptions. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes. Milliman has provided LACERA financial reporting results relevant to GASB Statements No. 67 and 68 in separate reports.

Milliman's work is prepared solely for the internal business use of LACERA. To the extent that Milliman's work is not subject to disclosure under applicable public records laws, Milliman's work may not be provided to third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of its work product. Milliman's consent to release its work product to any third party may be conditioned on the third party signing a Release, subject to the following exceptions:

- (a) LACERA may provide a copy of Milliman's work, in its entirety, to LACERA's professional service advisors who are subject to a duty of confidentiality and who agree to not use Milliman's work for any purpose other than to benefit LACERA.
- (b) LACERA may provide a copy of Milliman's work, in its entirety, to other governmental entities, as required by law.

No third party recipient of Milliman's work product should rely upon Milliman's work product. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are pension actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the plan sponsors. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

We would like to express our appreciation to Mr. Robert Hill, Interim Chief Executive Officer of LACERA, and to members of his staff, who gave substantial assistance in supplying the data on which this report is based.

This work product was prepared solely for LACERA for the purposes described herein and may not be appropriate to use for other purposes. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work. Milliman recommends that third parties be aided by their own actuary or other qualified professional when reviewing the Milliman work product.



We respectfully submit the following report, and we look forward to discussing it with you.

Sincerely,

A handwritten signature in black ink that reads "Mark C. Olleman".

Mark Olleman, FSA, EA, MAAA
Consulting Actuary

A handwritten signature in black ink that reads "Nick Collier".

Nick Collier, ASA, EA, MAAA
Consulting Actuary

A handwritten signature in black ink that reads "Craig Glyde".

Craig Glyde, ASA, EA, MAAA
Consulting Actuary

A handwritten signature in black ink that reads "Julie D. Smith".

Julie Smith, FSA, EA, MAAA
Actuary

MO/NC/CG/JS/nlo

Table of Contents

	Page
Section 1	Summary of the Findings 1
Exhibit 1	Summary of Significant Valuation Results 10
Section 2	Scope of the Report 11
Section 3	Assets 13
Exhibit 2	Statement of Fiduciary Net Position As of June 30, 2017 and June 30, 2016 17
Exhibit 3	Statement of Changes in Fiduciary Net Position For the Years Ended June 30, 2017 and 2016 .18
Exhibit 4	Allocation of Assets by Accounting Reserve Amounts 19
Exhibit 5	Five-Year Smoothing of Gains and Losses on Market Value 20
Exhibit 6	Allocation of Valuation and Non-Valuation Assets 21
Section 4	Actuarial Liabilities 23
Exhibit 7	Actuarial Balance Sheet – June 30, 2017 24
Exhibit 8a	Analysis of Change in Unfunded Actuarial Accrued Liability 28
Exhibit 8b	History of Changes in Unfunded Actuarial Accrued Liability 29
Section 5	Member Contributions 31
Exhibit 9	Sample Member Contribution Rates 33
Section 6	Employer Contributions 35
Exhibit 10	Calculated Normal Cost Contribution Rates – June 30, 2017 37
Exhibit 11a	Total Employer Contributions (without phase-in of new assumptions) 38
Exhibit 11b	Total Employer Contributions (with phase-in of new assumptions) 39
Exhibit 12	Unfunded Actuarial Accrued Liability Detail 40
Section 7	Supplemental Information 41
Exhibit 13	Schedule of Funding Progress 42
Exhibit 14	Schedule of Contributions from the Employer 43
Exhibit 15	Solvency Test 44
Exhibit 16	Actuarial Analysis of Financial Experience 45
Exhibit 17	Retirants and Beneficiaries added to and removed from Retiree Payroll 46
Section 8	Cash Flow History and Projections 47
Exhibit 18a	Cash Flow History and Projections – Dollars 48
Exhibit 18b	Cash Flow History and Projections – Charts 49
Appendix A	Actuarial Procedures and Assumptions A-1
Appendix B	Summary of Plan Provisions B-1
Appendix C	Valuation Data and Schedules C-1
Appendix D	Member Contribution Rates D-1
Appendix E	Historical Information E-1
Appendix F	Glossary F-1

Section 1 Summary of the Findings



Overview

2017 Valuation Results

	June 30, 2017	June 30, 2016
Employer Contribution Rate with Phase-in	20.04% ⁽¹⁾	19.70% ⁽²⁾
Funded Ratio	79.9%	79.4%

1. FYE 2019 employer contribution rate without phase-in is 21.00%.
2. FYE 2018 employer contribution rate without phase-in is 21.21%.

This report presents the results of the June 30, 2017 actuarial valuation. This valuation determines the required contribution rates payable starting July 1, 2018. Several key points are summarized as follows:

- **Investment Returns:** For the fiscal year ending in 2017, the fund returned 12.7% on a market basis (net of investment expenses). In total, there was a \$2.6 billion gain on market assets relative to the assumed rate of return of 7.25%. However, the recognition of net asset losses from prior years partially offset this gain, resulting in a return on actuarial assets of 8.2%. The resulting gain on actuarial assets was \$421 million.
- **Employer Contribution Rates:** The total calculated employer contribution rate increased from the prior valuation by 0.34% (from 19.70% to 20.04%) of payroll. The 20.04% reflects two-thirds of the three-year phase-in of the increase in the employer contribution rate due to the new assumptions adopted prior to the 2016 valuation. Without the phase-in, the employer contribution rate would have been 0.96% higher at 21.00% of payroll. The cost impact of the assumption changes will be fully phased into the employer contribution rate with the next valuation.

The increase in the employer contribution rate is primarily due to the additional year of phase-in of the cost impact of the 2016 assumption changes. This increase was partially offset by typical year-to-year fluctuations, including the impact of strong investment returns discussed above.

The “Analysis of Change” section that follows later in Section 1 provides an analysis of the sources of change in employer contribution rates since last year. In addition, the section “Employer Contribution Rates” shows a 10-year projection of employer contribution rates.

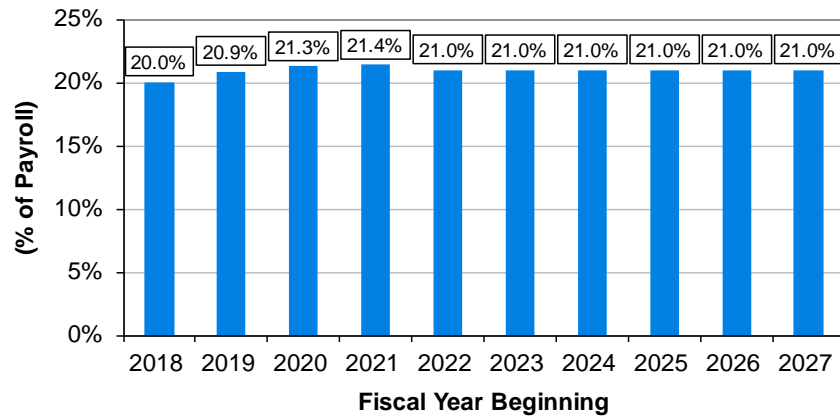
- **Member Contribution Rates:** New member contribution rates for two plans are recommended effective July 1, 2018, based on the new normal cost rates calculated in the 2017 valuation. The recommended member rates are shown in Section 5 for General Plan G (increase from 8.31% to 8.43%) and Safety Plan C (decrease from 14.00% to 13.87%). No changes in the members rates are recommended for the other plans.
- **Funding:** The Funded Ratio increased from 79.4% to 79.9% primarily due to investment performance. Recognition of current and prior year asset losses caused a 0.6% increase. The “Analysis of Change” section provides an analysis of the sources of change in the Funded Ratio since last year.

Employer Contribution Rates

The employer contribution rate beginning July 1, 2018 is 20.04% of payroll (21.00% without the phase-in). These contribution rates are a weighted average for all LACERA plans. The actual percent of payroll to be contributed by the employers varies by plan as shown in Exhibit 11b on page 38.

The new calculated rate is effective for the fiscal year beginning July 1, 2018. As a result of the phasing in of the contribution increases due to the 2016 assumptions, it is expected that the employer contribution rate will increase in the fiscal year beginning July 1, 2019. Even if all actuarial assumptions are met over the next few years, we project additional modest changes in the employer contribution rate as deferred asset gains and losses are recognized. To illustrate this impact, we have performed a 10-year projection of the employer contribution rate that assumes all actuarial assumptions are met and reflects the projected recognition of deferred asset gains and losses existing as of June 30, 2017. This projection is shown in the chart below.

Projected Employer Contribution Rate⁽¹⁾



1. Projections assume that all actuarial assumptions are met after June 30, 2017, and reflect the phasing in of the 2016 assumption costs and the scheduled recognition of asset gains and losses currently being deferred. Actual results will vary.

Analysis of Change

The following chart shows an analysis of the factors resulting in the change in employer contribution rate and Funded Ratio over the last year. The impact of the phase-in of the assumption changes was the most significant factor affecting the employer contribution rate.

Sources of Change	Employer Contribution Rate	Funded Ratio
June 30, 2016 Actuarial Valuation	19.70%	79.4%
Expected Year-to-Year Change	0.00%	0.3%
Assumption Changes	0.00%	0.0%
Recognized Asset Gain/Loss		
From Current Year	-0.38%	0.7%
From Prior Years	0.06%	-0.1%
Combined Asset Gain/Loss	<u>-0.32%</u>	<u>0.6%</u>
Contributions > Assumed	-0.07%	0.0%
Payroll Increase > Assumed	-0.18%	0.0%
Liability Gain/Loss		
Salary Increase > Assumed	0.23%	-0.4%
Retiree COLAs < Assumed	-0.12%	0.2%
Other	0.25%	-0.2%
Combined Liability Gain/Loss	<u>0.36%</u>	<u>-0.4%</u>
Recognition of 2016 Assumptions	<u>0.55%</u>	<u>0.0%</u>
Total Change	<u>0.34%</u>	<u>0.5%</u>
June 30, 2017 Actuarial Valuation	20.04%	79.9%

Based on the 2016 valuation, the expected UAAL of June 30, 2017 was \$13.16 billion. The actual UAAL for the fiscal year ending June 30, 2017 is \$13.15 billion. An analysis of the difference between expected and actual UAAL is shown in Exhibit 8a on page 28.

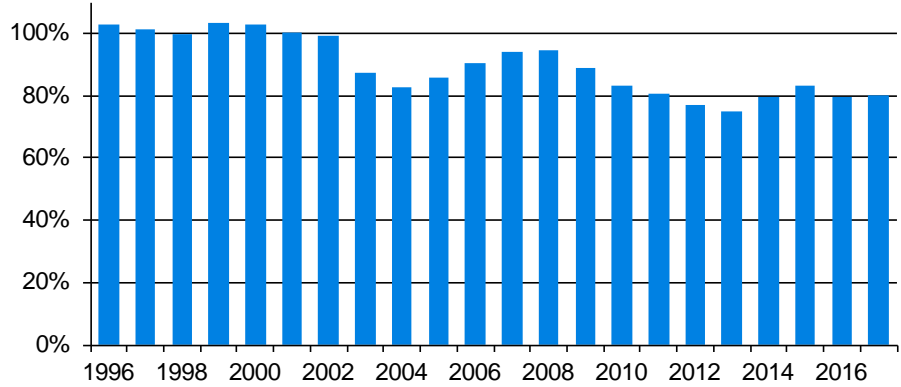
Funding Progress

One measure of the funding adequacy of the Plan is the Funded Ratio, which compares the value of the actuarial value of assets (net of certain non-valuation reserves) to the Actuarial Accrued Liability (AAL), for all LACERA plans combined. LACERA's Funded Ratio was 94.5% as of June 30, 2008. As shown in the graph that follows, the Funded Ratio decreased steadily over the five year period following the economic downturn, to a low of 75.0% as of June 30, 2013 as asset losses were gradually recognized. The funded ratio has gradually increased since that time.

**Funding Progress
(continued)**

On June 30, 2017, the market value of the fund (including non-valuation reserves) was \$52.7 billion. The actuarial value of assets was also \$52.7 billion, split between \$0.5 billion of non-Valuation Assets and \$52.2 billion of Valuation Assets. The Valuation Assets are equal to 79.9% of the \$65.3 billion AAL. The actuarial value of assets is approximately 100% of the market value of assets. A historical perspective of the funded ratio is shown in the following chart.

Historical Funded Ratios



Association Assets

- **Market Value:** The market value of assets has increased over the past 10 years. The average rate of return for the fund over that period is 5.2% (net of investment expenses), as reported by LACERA. However, due to benefit payments being greater than contributions, the total annual increase in the market value has averaged less. This is typical of a mature retirement system. The values shown in the market value column are total assets net of liabilities and include all reserves.
- **Actuarial Assets:** The market value of total assets is used in calculating the actuarial value of assets. Under the actuarial asset method, the market value returns in excess of (or less than) the assumption are smoothed over a five-year period.
- **Valuation Reserves:** The reserves represent the ownership of LACERA's assets. The reserves are established in compliance with the County Employees Retirement Law of 1937 as administered by the Board of Investments. These assets also reflect five-year smoothing. On a smoothed basis, the fund returned 8.2% for the prior year.
- **Non-Valuation Reserves:** The non-valuation reserves are set aside for obligations or contingencies. They are not used to fund the retirement benefits unless explicitly stated. These assets may also reflect smoothing.
- **Valuation Assets:** This is the combination of the valuation reserves and the portion of the non-valuation reserves that are recognized for funding purposes only as specified in LACERA's Funding Policy. Under this policy, the reserve value for STAR benefits is included in the Valuation Assets; however, the liability for any STAR benefits that may be granted in the future is not included in the valuation.

Future Impact of Recognition of Deferred Losses

The smoothing method is currently deferring \$50 million in net asset gains. As the currently deferred gains and losses are recognized over upcoming valuations, it is expected there will be short-term increases in the calculated employer contribution rate, followed by a small decrease as the asset gain from the fiscal year ended June 30, 2017 is fully recognized over the next four years.

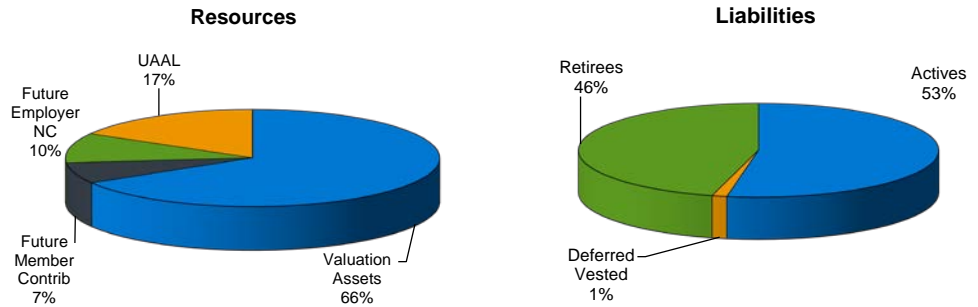
The potential future impact of the recognition of these deferred gains and losses and the phasing in of the new assumption costs on the projected employer contribution rate is illustrated in the chart on page 2.

Actuarial Balance Sheet

The first step in the valuation process is to compare the total actuarial assets of LACERA with its total liabilities for all plans. In this analysis, assets equal those currently on hand, at the actuarial value, and also expected future contributions by both the employers and members. Liabilities reflect benefits already earned in the past and those expected to be earned in the future by current members. This relationship is shown in the following chart. The AAL is the total of these liabilities less expected future Normal Cost contributions.

**Actuarial Balance Sheet
 (continued)**

The 2017 actuarial valuation indicates that LACERA's Valuation Assets are less than its AAL. The difference between these two values is the UAAL. It is discussed, along with the effect of the experience gains and losses, in detail in Section 4, Actuarial Liabilities.



Funding Policy

The Board of Investments adopted a new Funding Policy in 2009, which was amended in 2013. Significant provisions of this policy, first reflected in the June 30, 2009 actuarial valuation, are as follows:

- **Asset Smoothing Period:** Asset gains and losses are smoothed over a five-year period.
- **Amortization Period:** The Funding Policy utilizes a “layered” amortization method. Under the policy, the UAAL amount as of the valuation for which the policy was first effective (June 30, 2009) is amortized over a closed 30-year period. Subsequent gains and losses on the UAAL are amortized over new closed 30-year periods. The employer contribution rate is not allowed to be less than the rate if LACERA amortized the total UAAL over a 30-year period. Exhibit 12 of this report illustrates in detail the calculation of the total UAAL rate for the fiscal year beginning in 2018.

If LACERA moves to a negative UAAL position, only the normal cost rate will generally be paid. If the Funded Ratio exceeds 120%, the “surplus” amount will be amortized over an open 30-year period.

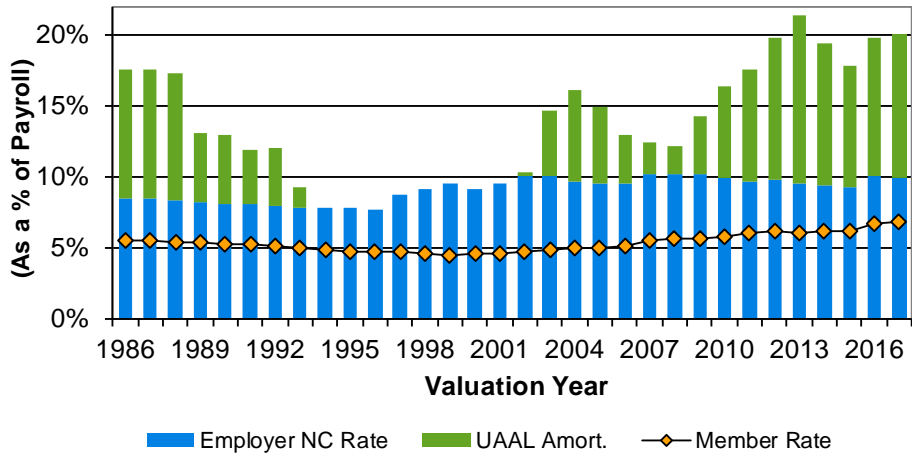
- **STAR Reserve:** The STAR reserve is included in the Valuation Assets. There is no corresponding liability for future STAR benefits included in the valuation. The inclusion of the STAR reserve in the Valuation Assets was formalized for the current and future actuarial valuations in the February 2013 amendment to LACERA's Funding Policy.

Note that if the STAR reserve of \$614 million was excluded from the Valuation Assets, the UAAL would increase by this amount. Under this hypothetical scenario, the calculated employer contribution rate for the fiscal year beginning July 1, 2018 would increase by 0.47% of payroll, and the Funded Ratio would decrease by 1.0% to 78.9%.

Employer Contribution Rates

Based on the results of the valuation, the calculated employer contribution rate will increase for the fiscal year beginning in 2018 to a rate of 20.04% of pay (21.00% without the phase-in). A historical perspective of the employer contribution rates is shown in the following chart.

Employer Contribution Rate



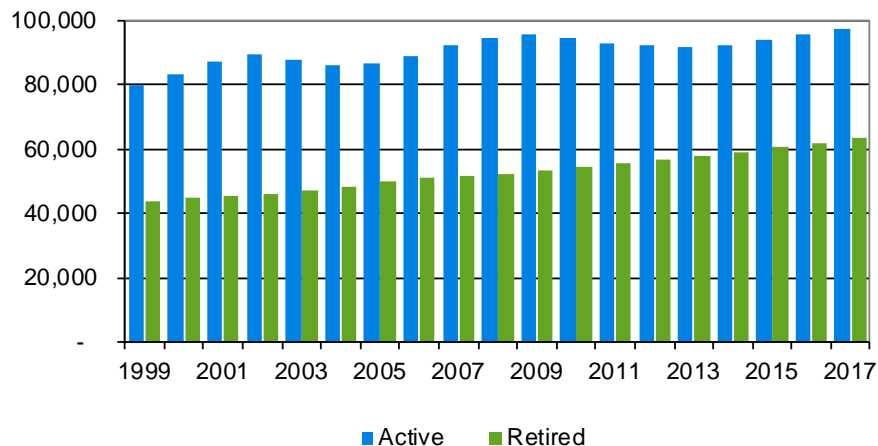
Member Rates

New member rates for members of General Plan G and Safety Plan C are being recommended that are equal to one-half of the Plan’s normal cost rate calculated as of the June 30, 2017 valuation. No changes in the members rates are recommended for the other plans. Member rates for all plans are discussed in Section 5 and are shown in detail in Appendix D.

Member Information

Payroll and active membership have each increased since 2016. As of June 30, 2017, the annualized payroll (for retirement benefits) is \$7.75 billion for 97,211 active members. This is a result of a 3.0% increase in average pay and a 1.9% increase in the number of active members.

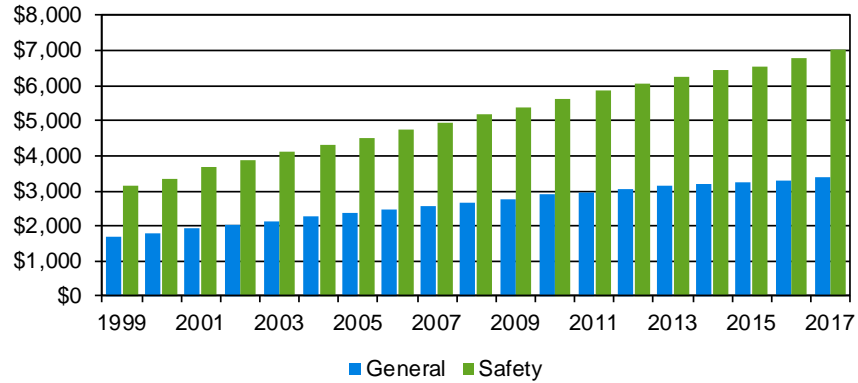
Membership Count



**Member Information
 (continued)**

Retired member counts and average retirement benefit amounts continue to increase steadily. For 2017, there were 63,324 retired members and beneficiaries with an average benefit of \$4,091 per month. This represents a 2.3% increase in count and a 2.9% increase in the average monthly benefit.

Average Monthly Retirement Benefit



**Analysis of Change in
 Member Population**

The following table summarizes the year-to-year change in member population. In addition to the movement shown below, 172 members transferred from Plan E to Plan D during the past year, and 34 members transferred from Plan D to Plan E.

	Active Contributing Members	Vested Former Members ⁽¹⁾	Retirees, Disabilities, & Beneficiaries
June 30, 2016 Valuation	95,444	13,527	61,914
Termination without Refund	(1,343)	1,343	-
Termination with Refund	(374)	(204)	-
Active/Former Death with Beneficiary	(168)	(3)	171
Service Retirement	(2,411)	(366)	2,777
Disability Retirement	(215)	(15)	230
Retiree Death without Beneficiary	-	-	(1,768)
New Entrants	6,147	92	-
Rehires	131	(131)	-
Total Change	1,767	716	1,410
June 30, 2017 Valuation	97,211	14,243	63,324

1. Includes non-vested former members who have not taken a refund of their contributions.

Sensitivity to Investment Return

The valuation results are projections based on the actuarial assumptions. Actual experience will differ from these assumptions, either increasing or decreasing the ultimate cost. Of the assumptions, the investment return generally has the biggest impact. The following table provides a simple analysis on how the short-term costs are affected by the investment return assumption. Note that the long-term cost of the System will be largely driven by actual investment returns and other experience; the assumptions used in the valuation impact the timing of the contributions over the long term.

	Investment Return Assumption		
	Current 7.25%	+0.5% 7.75%	-0.5% 6.75%
Employer Contribution Rate	21.00%	16.54%	26.07%
Change		-4.46%	5.07%
Funded Ratio	79.9%	85.5%	74.3%
Change		5.6%	-5.6%

Note: Employer contribution rates shown do not reflect phase-in.

Summary Valuation Results

The following Exhibit 1 presents a summary of key data elements on June 30, 2017 and June 30, 2016, and how they changed over the past year. More detail on each of these elements can be found in the following Sections and Exhibits of this report.

Exhibit 1 Summary of Significant Valuation Results

	June 30, 2017	June 30, 2016	Percentage Change
I. Total Membership			
A. Active Members	97,211	95,444	1.9%
B. Retired Members & Beneficiaries	63,324	61,914	2.3%
C. Vested Former Members ⁽¹⁾	14,243	13,527	5.3%
D. Total	174,778	170,885	2.3%
II. Pay Rate as of June 30, 2017			
A. Annual Total (\$millions)	\$ 7,749	\$ 7,390	4.9%
B. Monthly Average per Active Member	\$ 6,643	\$ 6,452	3.0%
III. Average Monthly Benefit Paid to Current Retirees and Beneficiaries			
A. Service Retirement	\$ 4,078	\$ 3,975	2.6%
B. Disability Retirement	\$ 5,321	\$ 5,127	3.8%
C. Surviving Spouse and Dependents	\$ 2,832	\$ 2,733	3.6%
D. Total	\$ 4,091	\$ 3,974	2.9%
IV. Actuarial Accrued Liability (\$millions)			
A. Active Members	\$ 28,234	\$ 26,883	5.0%
B. Retired Members	\$ 36,032	\$ 34,323	5.0%
C. Vested Former Members	\$ 1,045	\$ 993	5.2%
D. Total	\$ 65,311	\$ 62,199	5.0%
V. Assets			
A. Market Value of Fund (\$millions)	\$ 52,744	\$ 47,847	10.2%
B. Actuarial Value (\$millions)			
1. Valuation Reserves	\$ 52,166	\$ 49,358	5.7%
2. Non-valuation Reserves	\$ 527	\$ 500	5.4%
C. Annual Investment Return			
1. Market Basis (Net Return)	12.7%	0.8%	n/a
2. Valuation (Actuarial) Basis	8.2%	6.5%	n/a
VI. Unfunded Actuarial Accrued Liability or (Surplus Funding) in \$millions	\$ 13,145	\$ 12,841	2.4%
VII. Employer contribution rate for all plans combined as a percent of total payroll			
A. Gross Normal Cost	16.70%	16.62%	0.5%
B. Member Contributions ⁽²⁾	(6.76)%	(6.65)%	1.7%
C. Employer Normal Cost	9.94%	9.97%	(0.3)%
D. UAAL Amortization	11.06%	11.24%	(1.6)%
E. Calculated Contribution Rate	21.00%	21.21%	(1.0)%
F. Deferred Recognition of new assumptions	(0.96)%	(1.51)%	(36.4)%
G. Employer Contribution Rate with phase-in	20.04%	19.70%	1.7%
VIII. Funded Ratio	79.9%	79.4%	0.6%
IX. Results Based on Market Value (Informational Purposes Only)			
Calculated Contribution Rate	20.96%	22.79%	(8.0)%
Funded Ratio (excluding non-valuation reserves)	80.0%	76.1%	5.1%

1. Includes non-vested former members with contributions on deposit.

2. Includes non-contributory members. The average rate for contributory plans increased from 8.29 % to 8.31%.

Section 2 Scope of the Report



This report presents the actuarial valuation of the Los Angeles County Employees Retirement Association as of June 30, 2017. This valuation was requested by the Board of Investments. Section 31453 of the County Employees Retirement Law of 1937 (the '37 Act) requires an actuarial valuation to be performed at least every three years for the purpose of setting contribution rates. The 2017 valuation meets this requirement. Under LACERA's Funding Policy, annual valuations determine the employer contribution rates each year. Member contribution rates for all plans except General Plan G and Safety Plan C are set in years in which relevant actuarial assumptions are altered, such as 2016. For members of General Plan G and Safety Plan C, member contribution rates are recalculated each year, based on one-half of the Plan's normal cost rate.

A summary of the findings resulting from this valuation is presented in the previous section. Section 3 describes the assets and investment experience of the system. The assets and investment income are presented in Exhibits 2-4. Exhibit 5 develops the actuarial value of assets as of June 30, 2017. Exhibit 6 develops the Valuation Assets used for funding benefits.

Section 4 describes the benefit obligations of LACERA. Exhibit 7 is the Actuarial Balance Sheet and Exhibit 8a analyzes the change in UAAL. Exhibit 8b shows a history of these changes.

Section 5 discusses the member contribution rates.

Section 6 discusses the employer contributions needed to fund the benefits under the actuarial cost method in use.

Section 7 discloses supplemental information for use in the CAFR. Milliman provides LACERA financial reporting information relevant to GASB Statements No. 67 and 68 in separate reports.

Section 8 shows the estimated cash flow of the system, including a projection of both contributions and benefit payments.

This report includes several appendices:

- Appendix A A summary of the actuarial procedures and assumptions used to estimate liabilities and contributions.
- Appendix B A summary of the current benefit structure, as determined by the provisions of governing law on June 30, 2017.
- Appendix C Schedules of valuation data classified by various categories of plan members.
- Appendix D Member contribution rates by plan.
- Appendix E Historical information.
- Appendix F A glossary of actuarial terms used in this report.

This page intentionally left blank.

Section 3 Assets



In many respects, an actuarial valuation can be thought of as an inventory process. The inventory is taken as of the actuarial valuation date, which for this valuation is June 30, 2017. On that date, the assets available for the payment of retirement benefits are appraised. These assets are compared with the actuarial liabilities (both accrued and future) for current members, which are generally in excess of the actuarial assets. The purpose of the valuation is to determine what future contributions by the members and employers are needed to pay all expected future benefits.

This section of the report looks at the determination of assets used for funding purposes. In the next section, the actuarial liabilities will be discussed. Section 6 reviews the process for determining required contributions based on the relationship between the actuarial assets and the actuarial liabilities.

A historical summary of the system's assets is presented below:
(All dollar amounts in billions)

	Market Value of Total Assets	Actuarial Value		Total Fund Return (%) ⁽¹⁾
		Non- Valuation Reserves	Valuation Assets	
2008	\$ 38.7	\$ 0.9	\$ 39.7	-1.5
2009	30.5	0.8	39.5	-18.3
2010	33.4	0.8	38.8	11.8
2011	39.5	0.9	39.2	20.4
2012	38.3	0.9	39.0	0.3
2013	41.8	0.4	39.9	12.1
2014	47.7	0.5	43.7	16.8
2015	48.8	0.5	47.3	4.3
2016	47.8	0.5	49.4	1.1
2017	52.7	0.5	52.2	12.7

1. As reported in the Investment Section of the CAFR. Prior to 2017, returns are shown gross of investment expenses. Beginning in 2017, returns are shown net of investment expenses.

On June 30, 2017, the total market value of the fund, less current liabilities, was \$52.7 billion. The actuarial value of the fund was determined to be \$52.7 billion, including the non-valuation reserves. The average total fund return for the last 10 years is 5.2% gross of fees, as reported by LACERA.

Financial Exhibits

Exhibit 2 presents a Statement of Fiduciary Net Position and Exhibit 3 presents a Statement of Changes in Fiduciary Net Position. Exhibit 4 describes the allocation of LACERA's assets by the various reserve values determined for accounting purposes as disclosed in the audited financial statements.

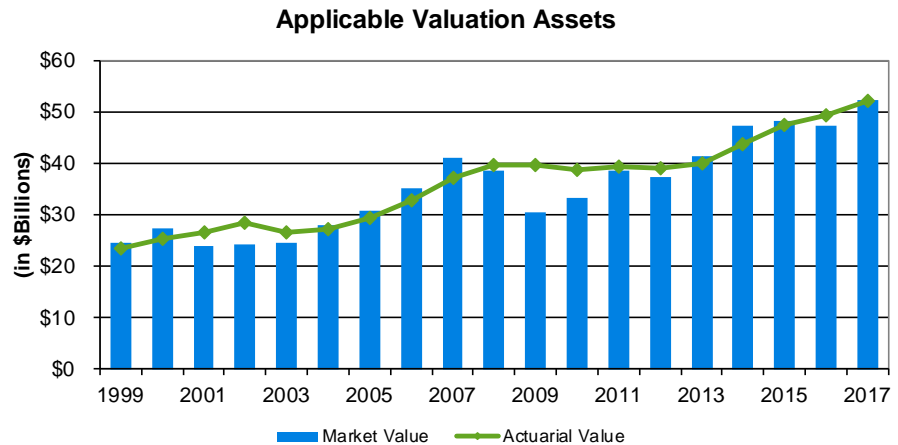
Exhibits 2-4 are taken directly from data furnished to us by LACERA in its annual financial report. We have accepted these tables for use in this report without audit, but we have reviewed them both for the prior year and the current year for reasonableness and consistency with previous reports.

Actuarial Asset Method

The actuarial asset method computes the expected market value of assets based on the prior year's market value of assets, the actual cash flow of contributions and benefit payments, and the assumed investment rate of return. For the previous year, the assumed rate of return was 7.25%, net of all expenses. The difference between the actual market value and the computed expected market value is smoothed, or recognized, over a five-year period.

Actuarial Value of Assets

The development of the June 30, 2017 actuarial value of assets is shown in Exhibit 5. Note the smoothing process is deferring past investment gains and losses, and is currently in a net actuarial gain position. The result is an actuarial value of assets that is less than the June 30, 2017 market value by \$50 million. The following graph shows a historical comparison of the actuarial and market assets used for valuation purposes.



Funding Policy

Under the Board of Investments' long-term Funding Policy, the following is the allocation of actuarial assets. A Funded Ratio equal to 100% is the Funding Goal.

For funding purposes and for setting contributions rates, recognized earnings for a plan year is the recognized investment income as determined by the Actuarial Asset Method and includes both unrealized income and net realized income, together with the prior balance in the Contingency Reserve. The allocation of recognized earnings is performed once a year as of the Valuation Date in the following order of priority:

- Priority 1: Allocate to the Member Reserve so the Actuarial Asset allocation to that Reserve equals the accounting value for that Reserve on the Valuation Date.
- Priority 2: Allocate to the Advanced Employer Contributions Reserve so the Actuarial Asset allocation to that Reserve equals the accounting value for that Reserve on the Valuation Date.
- Priority 3: Allocate to the Employer Reserve so the Actuarial Asset allocation to that reserve equals the accounting value for that Reserve on the Valuation Date.
- Priority 4: Allocate to the County Contribution Credit Reserve so the Actuarial Asset allocation to that reserve equals the accounting value for that Reserve on the Valuation Date. Note: This Reserve is not a Valuation Reserve.
- Priority 5: Allocate to the Employer Reserve so the total amounts allocated equal one year's interest at the assumed interest rate used in the actuarial valuation as of the preceding Valuation Date to the extent there are positive recognized earnings to allocate.
- Priority 6: Allocate to the Contingency Reserve an amount equal to 1% of the Market Value of Assets as of the Valuation Date to the extent there are positive recognized earnings to allocate.
- Priority 7: Allocate to the Employer Reserve an amount, if necessary, when combined with other Valuation Reserves, to provide 100% funding of the AAL as of the Valuation Date to reach the Funding Goal. In the event there are negative recognized earnings, allocate the entire amount.
- Priority 8: The Board may consider additional actions as permitted under the County Employee Retirement Law (CERL) using funds in excess of the amount needed to meet the Funding Goal for funding discretionary benefits. "Excess Earnings" as defined in the County Employees Retirement Law (CERL) may be appropriated upon reaching the Funding Goal; however, the Board may consider adjustment to the employer's contributions only upon satisfying California Government Code Section 7522.52(b).

Valuation Assets

Valuation Assets are the actuarial value of the fund, less the value of any reserves which have been set aside for current liabilities and special benefits that are to be funded outside of the actuarially determined contribution rates. In the calculation of the Valuation Assets, the Contingency Reserve is set at a minimum of 1.0% of the market value of the total assets.

The Funding Policy allows the STAR Reserve to be allocated to the Valuation Assets (subject to periodic review), if needed. The June 30, 2017 STAR Reserve accounting value of \$614 million was included in Valuation Assets and used to determine the contribution rates for the fiscal year commencing July 1, 2018. Although the reserve value for STAR benefits is included in the 2017 Valuation Assets, there is no liability included in this valuation for STAR benefits that may be granted in the future.

The non-valuation reserve allocations for funding purposes shown in Exhibit 6 are not the same as those shown in the audited financial statements and in Exhibit 4.

**Exhibit 2 Statement of Fiduciary Net Position
 As of June 30, 2017 and June 30, 2016**

	2017	2016
Assets		
Cash and Short-Term Investments	\$ 1,523,990,094	\$ 846,783,214
Cash Collateral on Loaned Securities	922,583,739	872,138,652
Receivables		
Contributions Receivable	76,586,764	78,033,896
Accounts Receivable - Sale of Investments	931,019,669	1,035,639,923
Accrued Interest and Dividends	106,074,155	130,324,747
Accounts Receivable - Other	33,278,035	34,094,876
Total Receivables	<u>1,146,958,623</u>	<u>1,278,093,442</u>
Investments at Fair Value		
Equity	25,471,070,361	22,464,825,665
Fixed Income	14,126,188,089	13,685,275,872
Private Equity	5,050,441,901	4,410,209,484
Real Estate	6,139,831,656	6,062,780,002
Hedge Funds	1,437,924,968	1,275,576,023
Total Investments	<u>52,225,456,976</u>	<u>47,898,667,047</u>
Total assets	<u>55,818,989,432</u>	<u>50,895,682,355</u>
Liabilities		
Accounts Payable - Purchase of Investments	2,074,418,652	2,104,540,164
Retiree Payroll and Other Payables	1,148,844	847,454
Accrued Expenses	38,780,205	32,265,493
Tax Withholding Payable	34,913,612	32,748,492
Obligations under Securities Lending Program	922,583,739	872,138,652
Accounts Payable - Other	3,493,409	6,448,263
Total liabilities	<u>3,075,338,461</u>	<u>3,048,988,519</u>
Net position restricted for pension benefits	<u>\$ 52,743,650,971</u>	<u>\$ 47,846,693,836</u>

**Exhibit 3 Statement of Changes in Fiduciary Net Position
 For the Years Ended June 30, 2017 and 2016**

	2017	2016
Additions		
Contributions		
Employer	\$ 1,370,921,787	\$ 1,443,129,898
Member	487,016,114	458,665,176
Total Contributions	<u>1,857,937,901</u>	<u>1,901,795,074</u>
Investment Income		
From Investing Activities:		
Net Appreciation/(Depreciation) in Fair Value of Investments	3,600,947,713	(966,251,016)
Investment Income/(Loss)	2,672,282,072	1,147,977,519
Total Investing Activity Income	<u>6,273,229,785</u>	<u>181,726,504</u>
Less Expenses From Investing Activities	<u>(150,350,042)</u>	<u>(106,566,465)</u>
Net Investing Activity Income	6,122,879,743	75,160,039
From Securities Lending Activities:		
Securities Lending Income	11,596,901	6,409,361
Less Expenses From Securities Lending Activities:		
Borrower Rebates	(3,709,500)	245,597
Management Fees	(1,467,113)	(1,226,774)
Total Expenses from Securities Lending Activities	<u>(5,176,613)</u>	<u>(981,177)</u>
Net Securities Lending Income	6,420,288	5,428,184
Total Net Investment Income	<u>6,129,300,031</u>	<u>80,588,222</u>
Miscellaneous	6,370,288	2,780,878
Total Additions	<u>7,993,608,220</u>	<u>1,985,164,174</u>
Deductions		
Retiree Payroll	3,002,929,279	2,859,011,063
Administrative Expenses	66,830,476	67,644,631
Refunds	24,451,924	27,092,265
Lump Sum Death Benefits	2,251,344	3,082,933
Miscellaneous	188,062	(10,192)
Total Deductions	<u>3,096,651,085</u>	<u>2,956,820,701</u>
Net increase/(decrease)	4,896,957,136	(971,656,527)
Net position restricted for pension benefits		
Beginning of Year	47,846,693,836	48,818,350,362
End of Year	<u>\$ 52,743,650,971</u>	<u>\$ 47,846,693,836</u>

**Exhibit 4 Allocation of Assets by Accounting Reserve Amounts
 (Dollars in Thousands)**

	June 30, 2017	June 30, 2016
1. Member Reserves		
a. Active Members	\$ 20,380,431	\$ 19,346,808
b. Unclaimed Deposits	-	-
c. Total Member Reserves	<u>\$ 20,380,431</u>	<u>\$ 19,346,808</u>
2. Employer Reserves		
a. Actual Employer Contributions	\$ 21,086,809	\$ 20,802,531
b. Advanced Employer Contributions	-	-
c. Total Employer Contributions	<u>\$ 21,086,809</u>	<u>\$ 20,802,531</u>
3. County Contribution Credit Reserve	\$ -	\$ 21,891
4. STAR Reserve	614,011	614,011
5. Contingency Reserve	-	-
6. Total Reserves at Book Value	<u>\$ 42,081,251</u>	<u>\$ 40,785,241</u>
7. Unrealized Investment Portfolio Appreciation	<u>10,662,400</u>	<u>7,061,453</u>
8. Total Reserves at Fair Value	<u>\$ 52,743,651</u>	<u>\$ 47,846,694</u>

Note: These amounts were determined by LACERA for accounting purposes and are reported in the June 30, 2017 CAFR.

Exhibit 5 Five-Year Smoothing of Gains and Losses on Market Value
 (Dollars in Thousands)

June 30, 2017 Valuation						
Plan Year Ending	Contributions	Benefit Payments	Expected Market Value	Actual Market Value	Phase-Out of Gain / (Loss)	
06/30/2017	\$ 1,857,938	\$ 3,029,633	\$ 50,102,154	\$ 52,743,651	80.00% x \$	2,641,497 = \$ 2,113,198
06/30/2016	1,901,795	2,889,186	51,455,977	47,846,694	60.00% x	(3,609,283) = (2,165,570)
06/30/2015	1,936,233	2,768,410	50,438,628	48,818,350	40.00% x	(1,620,278) = (648,111)
06/30/2014	1,759,443	2,662,401	43,970,326	47,722,277	20.00% x	3,751,951 = 750,390
06/30/2013						= 0
					Total Phase-Out of Gain / (Loss) =	\$ 49,907
					Total Market Value of Assets =	52,743,651
					Total Actuarial Value of Assets =	\$ 52,693,744
Total Actuarial Value of Assets = Total Market Value of Assets less the Total Phase-Out amount Phase-Out amounts will be recognized in future years.						

**Exhibit 6 Allocation of Valuation and Non-Valuation Assets
 (Dollars in Thousands)**

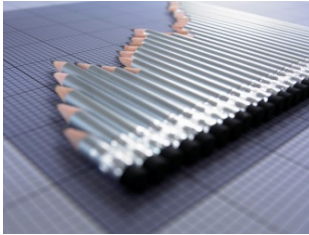
	June 30, 2017	June 30, 2016
1. Total Market Value of Assets	\$ 55,818,989	\$ 50,895,682
2. Current Liabilities	<u>3,075,338</u>	<u>3,048,988</u>
3. Net Assets Held in Trust for Pension Benefits	\$ 52,743,651	\$ 47,846,694
4. Market Stabilization Reserve ⁽¹⁾	<u>49,907</u>	<u>(2,011,511)</u>
5. Actuarial Value of Fund Assets	\$ 52,693,744	\$ 49,858,205
6. Non-Valuation Reserves ⁽²⁾		
a. Unclaimed Deposits	\$ -	\$ -
b. Contingency Reserve	527,437	478,467
c. Advanced Employer Contributions	-	-
d. County Contribution Credit Reserve	-	21,891
e. Reserve for STAR Program	-	-
f. Total	<u>\$ 527,437</u>	<u>\$ 500,358</u>
7. Valuation Assets ⁽²⁾		
a. Member Reserves	\$ 20,380,431	\$ 19,346,808
b. Employer Reserves for Funding Purposes	<u>\$ 31,785,876</u>	<u>\$ 30,011,039</u>
c. Total	<u>\$ 52,166,307</u>	<u>\$ 49,357,847</u>

1. The Market Stabilization Reserve represents the difference between the Market Value of the fund less Current Liabilities, and the Actuarial Value of the fund as determined in Exhibit 5.

2. The values used for funding purposes for all reserves are based on the Board's Funding Policy. Amounts used for funding purposes may differ from those reported in the audited financial statements as shown in Exhibit 4.

This page intentionally left blank.

Section 4 Actuarial Liabilities



In the previous section, an actuarial valuation was compared with an inventory process, and an analysis was given of the inventory of LACERA's assets as of the valuation date, June 30, 2017. In this section, the discussion will focus on the commitments of LACERA for retirement benefits, which are referred to as its actuarial liabilities.

Actuarial Balance Sheet – Liabilities

Actuarial liabilities attributable to both past and future benefits are included on the actuarial balance sheet. The difference between the Valuation Assets and the total actuarial liabilities is the amount that needs to be funded by future member and employer contributions. Both the current and future assets (contributions) are included on the actuarial balance sheet and compared to the total actuarial liabilities. The determination of the level of future member and employer contributions needed is discussed in the next section.

Exhibit 7 contains an analysis of the actuarial present value of all future benefits for inactive members (both retired and vested former members) and active members. The analysis is given by class of membership, by plan and by type of benefit. Note that for purposes of this exhibit the Valuation Assets are shown allocated by plan in proportion to each plan's reserves (employer and member).

The actuarial liabilities include the actuarial present value of all future benefits expected to be paid with respect to each member. For an active member, this value includes measures of both benefits already earned and future benefits to be earned. For all members, active and inactive, the value extends over the rest of their lives and for the lives of any surviving beneficiaries.

The actuarial assumptions used to determine the liabilities are based on the results of the 2016 Investigation of Experience Report. New assumptions were adopted by the Board effective with the June 30, 2016 actuarial valuation. See Appendix A of this report for details.

All liabilities reflect the benefits effective through June 30, 2017. This includes permanent STAR COLAs that have been adopted through the valuation date, but does not include the value of any STAR benefits that may be granted in the future.

Exhibit 7 Actuarial Balance Sheet – June 30, 2017
(Dollars in Millions)

	General						Safety			All Plans
	Plan A	Plan B	Plan C	Plan D	Plan E	Plan G	Plan A	Plan B	Plan C	
LIABILITIES										
Present Value of Benefits - Inactives										
- Retirees and Beneficiaries	\$ 12,049	\$ 443	\$ 244	\$ 6,294	\$ 3,274	\$ 3	\$ 7,426	\$ 6,293	\$ 6	\$ 36,032
- Vested Former	12	5	1	501	408	10	0	107	1	1,045
- Inactive Total	12,061	448	245	6,795	3,682	13	7,426	6,400	7	37,077
Present Value of Benefits - Actives										
- Service Retirement	\$ 165	\$ 62	\$ 62	\$ 18,160	\$ 6,030	\$ 2,583	\$ 12	\$ 7,253	\$ 436	\$ 34,763
- Transfer Service (prior LACERA plan)	0	0	0	218	436	1	1	9	0	665
- Disability Retirement	2	1	1	937	N/A	214	2	3,595	288	5,040
- Death	1	1	0	359	N/A	60	0	63	7	491
- Termination	0	0	0	219	89	169	0	42	21	540
- Active Total	168	64	63	19,893	6,555	3,027	15	10,962	752	41,499
Total Actuarial Liabilities	\$ 12,229	\$ 512	\$ 308	\$ 26,688	\$ 10,237	\$ 3,040	\$ 7,441	\$ 17,362	\$ 759	\$ 78,576
ASSETS										
Valuation Assets	\$ (265)	\$ 439	\$ 306	\$ 23,771	\$ 11,921	\$ 701	\$ (102)	\$ 15,284	\$ 111	\$ 52,166
PV Future Member Contributions	2	1	1	2,779	N/A	1,333	0	1,022	345	5,483
PV Future Employer Normal Cost Contribs.	5	1	1	3,155	1,184	1,333	0	1,759	344	7,782
UAAL or (Surplus Funding)	12,487	71	0	(3,017)	(2,868)	(327)	7,543	(703)	(41)	13,145
Total Current and Future Assets	\$ 12,229	\$ 512	\$ 308	\$ 26,688	\$ 10,237	\$ 3,040	\$ 7,441	\$ 17,362	\$ 759	\$ 78,576



Actuarial Balance Sheet – Liabilities (continued)

All liabilities reflect the benefits effective through June 30, 2017. This includes permanent STAR COLAs that have been adopted through the valuation date, but does not include the value of any future STAR benefits that may be granted in the future.

Actuarial Balance Sheet – Assets

For the purpose of the Actuarial Balance Sheet, LACERA's assets are equal to the sum of:

- (a) Assets currently available to pay benefits and considered for funding purposes (the Valuation Assets);
- (b) The present value of future contributions expected to be made by current active members; and
- (c) The present value of future contributions expected to be made by the employer.

Actuarial Cost Method

The Actuarial Balance sheet determines the amount of future contributions that are needed, but the method used to determine when those future contributions will be made in future years is called the "actuarial cost method." For this valuation, the entry age actuarial cost method has been used. Under this method, the contributions required to meet the difference between current assets and current actuarial liabilities are allocated each year between two elements:

- A normal cost amount; and
- Whatever amount is left over, which is used to amortize what is called the UAAL (Unfunded Actuarial Accrued Liability).

The two items described above – the Normal Cost and UAAL – are the keys to understanding the actuarial cost method.

Normal Cost

The Normal Cost is the theoretical contribution rate that will meet the ongoing costs of a group of average new employees. Suppose that a group of new employees was covered under a separate fund from which all benefits and to which all contributions and associated investment returns were paid. Under the entry age actuarial cost method, the Normal Cost contribution rate maintains the funding of benefits as a level percentage of pay. If experience follows the actuarial assumptions precisely, the fund would be completely liquidated when the last payment to the last survivor of the group is made.

By applying the Normal Cost contribution rate to the present value of salaries expected to be paid in the future, we determine the present value of future Normal Cost contributions. Future contributions are expected to be made by both the members and the employer. The member contribution rates are determined based upon requirements established in the '37 Act and the actuarial assumptions. Based on these member contribution rates, we determine the present value of future member contributions. We subtract that value from the total future Normal Cost contributions expected, based on the entry age cost method. The remaining difference is the employer's portion of the future Normal Cost contributions.

Actuarial Accrued Liability

The difference between the present value of all future obligations and the present value of the future Normal Cost contributions is referred to as the Actuarial Accrued Liability (AAL). The AAL is then compared to the value of assets available to fund benefits, and the difference is referred to as the UAAL. The results for LACERA for all plans are summarized below:

(Dollars in millions)	<u>2017</u>	<u>2016</u>	<u>Percent Change</u>
A. Actuarial present value of all future benefits for contributing members, former contributing members, and their survivors	\$ 78,576	\$ 74,775	5.1%
B. Actuarial present value of total future normal costs for current members	\$ 13,265	\$ 12,576	5.5%
C. Actuarial accrued liability [A-B]	\$ 65,311	\$ 62,199	5.0%
D. Valuation Assets	\$ 52,166	\$ 49,358	5.7%
E. UAAL or (Surplus Funding) [C-D]	\$ 13,145	\$ 12,841	2.4%
F. Funded Ratio [D/C]	79.9%	79.4%	0.6%

Unfunded Actuarial Accrued Liability

The portion allocated to service already rendered or accrued is called the AAL. The difference between the AAL and the Valuation Assets is called the UAAL. If a UAAL amount exists, it usually results from prior years' benefit or assumption changes and the net effect of accumulated gains and losses. If the employer had always contributed the current Normal Cost, and if there were no prior benefit or assumption changes, and if actual experience exactly matched the actuarial assumptions, then the present value of all future Normal Cost contributions would be sufficient to fund all benefits and there would be no UAAL.

Exhibit 7 shows how the UAAL was derived for each level of plan benefits. In the Actuarial Balance sheet, the total actuarial liability for all future benefits must be equal to the current and future assets.

The Actuarial Balance Sheet for each plan, as well as its UAAL is based on an estimated allocation of the total LACERA Valuation Assets, as disclosed in Exhibit 7. The allocation is based on the relative value of each plan's employer and member reserves as reported to us by LACERA. These allocations are shown for illustrative purposes only, as the UAAL contribution rates are assumed paid by the employer based on the valuation results in aggregate.

Funding Adequacy

A key consideration in determining the adequacy of the funding of LACERA is how the UAAL is being funded. If the UAAL amount is positive, that is, the AAL to be funded is greater than the Valuation Assets, then the UAAL is amortized. Under LACERA's Funding Policy, any positive amount must be amortized over layered 30-year periods.

If future experience is significantly more favorable than expected based on the actuarial assumptions, then LACERA may move to a Surplus Funding position. Conversely, if experience is less favorable, a larger UAAL will develop.

Analysis of Change in Unfunded Actuarial Accrued Liability

The UAAL, at any date after establishment of a system, is affected by any actuarial gains (decreases in UAAL) or losses (increases in UAAL) arising when the actual experience of the system varies from the experience anticipated by the actuarial assumptions used in the valuations. To the extent actual experience, as it develops, differs from that expected according to the assumptions used, so also will the emerging costs differ from the estimated costs.

The 2017 actuarial valuation reflects an actuarial experience gain of \$16 million for the fiscal year just ended. The effect of the gains and losses on the UAAL or Surplus Funding is shown in Exhibit 8a. A summary of these factors is:

- **Investment Returns:** Returns on market assets were 12.7% (net of investment expenses) compared to the assumed return of 7.25%. This, combined with recognitions of gains and losses from prior periods resulted in an asset gain of \$421 million.
- **Salary Increases:** Individual salaries for continuing active members increased at a rate greater than the valuation assumption. This resulted in a loss of \$277 million.
- **Actual CPI versus Assumption:** The actual CPI increase was less than assumed for members of Plan A, although some members had positive COLA banks to make up for this. The members who received COLA increases less than the assumption generated a gain of \$139 million.
- **Mortality Experience:** An actuarial loss due to mortality generally indicates that retired members are living longer than the current assumption would predict. This year, there was a small relative gain of \$51 million due to mortality, indicating retirees are currently living slightly shorter lives than assumed.
- **Other Experience:** Examples of this are gains and losses from termination, service retirement, disability retirement, death, service purchases, reciprocity, and transfers between plans.

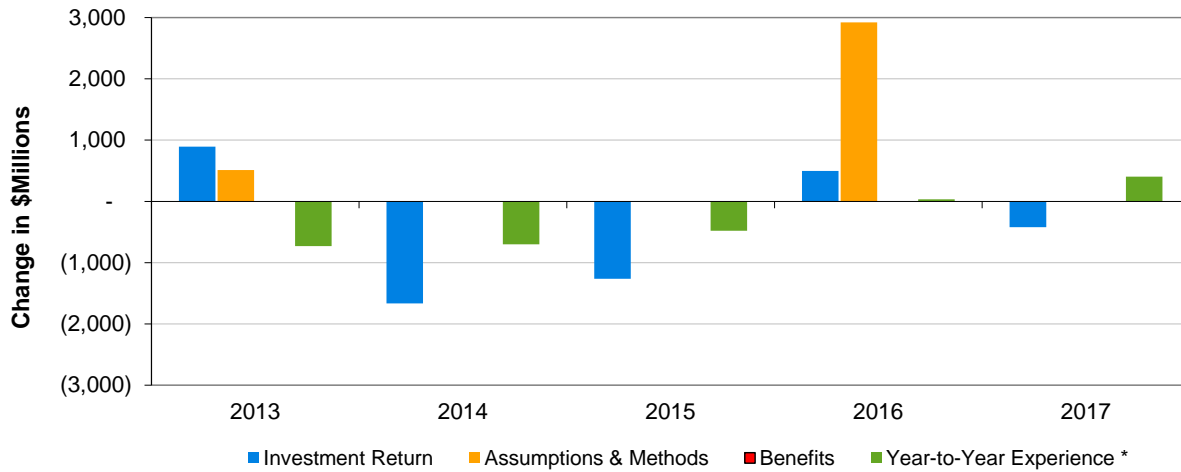
Change in Unfunded Actuarial Accrued Liability – History

Exhibit 8b shows the sources of change in the UAAL over the past five valuations. The biggest source of annual change in most years is the return on investments being either greater than or less than the assumption. For 2016, the assumption change had the largest impact.

**Exhibit 8a Analysis of Change in Unfunded Actuarial Accrued Liability
 (Dollars in Millions)**

	Amount	As a Percent of June 30, 2017 Actuarial Accrued Liability
Unfunded Actuarial Accrued Liability - June 30, 2016	\$ 12,841	19.7%
Increase in UAAL due to New Assumptions	-	0.0%
Interest Accrued	954	1.5%
Benefits Accrued (Normal Cost)	1,246	1.9%
<u>Contributions</u>		
Employer - Cash	\$ (1,371)	-2.1%
Employer - Contribution Credit	(22)	0.0%
Member	(487)	-0.7%
Total	<u>(1,880)</u>	-2.9%
Expected Unfunded Actuarial Accrued Liability - June 30, 2017	\$ 13,161	20.2%
<u>Source of Change</u>		
Asset (Gains) and Losses		
(Gain) / Loss due to Investment Income	(421)	-0.6%
<u>Actuarial (Gains) and Losses</u>		
Salary Increases Greater than Expected	\$ 277	0.4%
CPI Less than Expected	(139)	-0.2%
Mortality Experience	(51)	-0.1%
All Other Experience	318	0.5%
Total	<u>405</u>	0.6%
Total Changes	\$ (16)	0.0%
Unfunded Actuarial Accrued Liability - June 30, 2017	\$ 13,145	20.1%

**Exhibit 8b History of Changes in Unfunded Actuarial Accrued Liability
 (Dollars in Millions)**

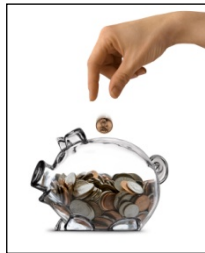


	2013	2014	2015	2016	2017	2013-17
Prior Valuation UAAL	\$ 11,770	\$ 13,315	\$ 11,288	\$ 9,491	\$ 12,841	\$ 11,770
Increase in UAAL due to:						
Expected Increase / (Decrease)	870	338	(54)	(102)	320	1,372
Asset (Gains) and Losses	893	(1,664)	(1,263)	496	(421)	(1,959)
Changes in Benefits	-	-	-	-	-	-
Changes in Assumptions	511	-	-	2,922	-	3,433
Changes in Methods	-	-	-	-	-	-
Salary Increases	(563)	(291)	79	162	277	(336)
CPI Less than Expected	(190)	(427)	(570)	(191)	(139)	(1,517)
Mortality Experience	(42)	(26)	(59)	(4)	(51)	(182)
All Other Experience	66	43	70	67	318	564
Total Increase / (Decrease)	1,545	(2,027)	(1,797)	3,350	304	1,375
Valuation UAAL	\$ 13,315	\$ 11,288	\$ 9,491	\$ 12,841	\$ 13,145	\$ 13,145
Funded Ratio	75.0%	79.5%	83.3%	79.4%	79.9%	79.9%

* Year-to-Year Experience includes changes due to Salary, CPI, Mortality and Other Experience.

This page intentionally left blank.

Section 5 Member Contributions



Normal Contributions for non-PEPRA Plans

Member contributions are of two types: Normal contributions and cost-of-living contributions.

Normal contributions for each non-PEPRA plan (all plans except General Plan G and Safety Plan C) are defined in the following sections of the County Employees' Retirement Law:

Plan	'37 Act Reference	Formula
General A	31621.3	1/240th of FAC at age 55
General B	31621.1	1/120th of FAC at age 55
General C	31621	1/120th of FAC at age 60
General D	31621	1/120th of FAC at age 60
General E	N/A	Plan E is non-contributory
Safety A	31639.5	1/200th of FAC at age 50
Safety B	31639.25	1/100th of FAC at age 50

Note: FAC = Final Average Compensation

Normal member contributions are determined using the Entry Age Normal Funding Method and the following actuarial assumptions:

1. Expected rate of return on assets.
2. Individual salary increase rate (wage growth + merit).
3. Mortality for members on service retirement.

As no assumption changes were implemented for the current valuation, no changes are recommended to the current member contribution rates, except for General Plan G and Safety Plan C, as discussed below.

Cost-of-Living Contributions for non-PEPRA Plans

The determination of the member cost-of-living contributions is based on Section 31873 of the County Employees' Retirement Law. This section requires that the cost of this benefit be shared equally between members and the employer. Unlike the member normal contributions, these rates are based on the actuarial cost of the benefits and reflect all assumptions used in the valuation of liabilities.

Cost-of-Living Contributions for non-PEPRA Plans (continued)

As no assumption changes were adopted for the current valuation, we are recommending no change in the member cost-of-living contribution rates. The cost-of-living contributions, expressed as a percentage of the normal contribution rates, are based on the June 30, 2016 actuarial valuation (the most recent valuation where non-PEPRA member rates were changed) and are as follows:

Plan	COLA %
General A	79.37%
General B	23.97%
General C	25.46%
General D	24.49%
General E	0.00%
Safety A	86.98%
Safety B	31.63%

The relative magnitude of these amounts reflects the differences in the normal contribution rates for each plan and the different cost-of-living benefits offered by the different plans. The rate for Plan E is 0.00%, since it is non-contributory.

A sample of the current member contribution rates (normal plus cost-of-living) can be found in Exhibit 9.

Full disclosure of the member rates, showing both the normal and the total (normal plus cost-of-living) contribution rates, can be found in Appendix D.

Member Contribution Rates for General Plan G and Safety Plan C (PEPRA Plans)

Members of the two plans developed in compliance with the Public Employees' Pension Reform Act of 2013 (PEPRA) contribute a flat rate (i.e., does not vary by entry age) based on whether they are in the General or Safety plan. This rate is set equal to one half of the total Normal Cost rate. We are recommending changes to the member contribution rates for these plans, as shown below, to reflect the Plan's Normal Cost rates for the 2017 valuation.

	General Plan G	Safety Plan C
All Ages: Recommended	8.43%	13.87%
All Ages: Current	8.31%	14.00%
Ratio (Rec'd / Current)	101.4%	99.1%

Note that the member contribution rates for these plans are further split for purposes of this report into a "Normal" and "Cost of Living" component. The cost-of-living component for these members, as shown in Exhibit 9 below, represents one-half of the cost of COLA for these plans.

Average Member Rates

The average member contribution rate for only those members in contributory plans at June 30, 2017 is 8.31% of covered payroll. This number compares to 6.76% of covered payroll, which is the average member contribution rate among all members. The 6.76% offsets the gross normal cost to yield the employer normal cost rate. Note that covered payroll does not include pay for PEPRA plan members above the PEPRA compensation limit.

Exhibit 9 Sample Member Contribution Rates

Recommended Rates (Based on 2017 Valuation)						
	Entry Age	Normal	Cost of Living	Total as a % of Pay	Current Rate (Total)	Ratio (New / Current)
General Members						
Plan A	25	2.97%	2.36%	5.33%	5.33%	100.0%
	35	3.71%	2.94%	6.65%	6.65%	100.0%
	45	4.56%	3.62%	8.18%	8.18%	100.0%
	55	4.93%	3.91%	8.84%	8.84%	100.0%
Plan B	25	5.93%	1.42%	7.35%	7.35%	100.0%
	35	7.41%	1.78%	9.19%	9.19%	100.0%
	45	9.13%	2.19%	11.32%	11.32%	100.0%
	55	9.87%	2.37%	12.24%	12.24%	100.0%
Plan C	25	5.04%	1.28%	6.32%	6.32%	100.0%
	35	6.29%	1.60%	7.89%	7.89%	100.0%
	45	7.86%	2.00%	9.86%	9.86%	100.0%
	55	9.29%	2.37%	11.66%	11.66%	100.0%
Plan D	25	5.04%	1.23%	6.27%	6.27%	100.0%
	35	6.29%	1.54%	7.83%	7.83%	100.0%
	45	7.86%	1.92%	9.78%	9.78%	100.0%
	55	9.29%	2.28%	11.57%	11.57%	100.0%
Plan G	All Ages	6.83%	1.60%	8.43%	8.31%	101.4%
Safety Members						
Plan A	25	4.18%	3.64%	7.82%	7.82%	100.0%
	35	5.15%	4.48%	9.63%	9.63%	100.0%
	45	6.15%	5.35%	11.50%	11.50%	100.0%
	55	6.21%	5.40%	11.61%	11.61%	100.0%
Plan B	25	8.36%	2.64%	11.00%	11.00%	100.0%
	35	10.31%	3.26%	13.57%	13.57%	100.0%
	45	12.31%	3.89%	16.20%	16.20%	100.0%
	55	12.42%	3.93%	16.35%	16.35%	100.0%
Plan C	All Ages	10.80%	3.07%	13.87%	14.00%	99.1%

Note: A portion of some of the member contribution rates is paid for (“picked up”) by the employer and is not considered part of the member’s contribution account for refund purposes. Such contributions are referred to as the surcharge amount and are subject to change each year. The rates shown in the table are prior to any surcharge payments.

This page intentionally left blank.

Section 6 Employer Contributions



Contributions to LACERA are determined using the Entry Age Normal Cost Method. The portion of the actuarial present value of retirement benefits allocated to a valuation year by the Actuarial Cost Method is called the Normal Cost. These amounts are usually expressed as a percentage of payroll and called the Normal Cost Contribution Rate. Exhibit 10 illustrates the Normal Cost Rates by type of benefit and for each plan based on this valuation. A comparison with last year is also shown.

Under the Funding Policy, the total contribution rate is set equal to the Normal Cost contribution plus a payment by the employer towards the UAAL. A portion of the Normal Cost contribution is funded by member contributions. The remainder is paid for by the employer.

Calculated Employer Contribution Rate

The total calculated employer contribution rates for each plan, along with a comparison to the prior year's calculated rates, can be found in Exhibit 11a. These results are expressed as a percentage of payroll and annual contribution dollars. Note that LACERA's UAAL contribution rate is not determined separately for each plan, but is funded evenly as a percentage of pay over salaries for all members. The total calculated employer contribution rate was 21.21% for the fiscal year beginning in 2017 (prior to the phase-in recognition).

For the fiscal year beginning in 2018, the total calculated employer contribution rate without phase-in decreases to 21.00%. This is equal to the net aggregate calculated Normal Cost contribution rate of 9.94% based on the 2017 valuation, plus a 30-year layered amortization payment of the UAAL.

(All values as a % of Payroll)

Employer Normal Cost	9.94%
30-year Layered Amortization of UAAL	<u>11.06%</u>
Calculated Employer Contribution Rate	21.00%

The 0.21% decrease from last year in the calculated employer contribution rate is primarily due to the recognition of investment gains, which resulted in a decrease of 0.32% in the employer contribution rate. Other sources, including COLA increases smaller than assumed and salary increases greater than assumed, increased the UAAL rate by about 0.11%. The UAAL rate reflects a layered 30-year amortization from the valuation date with a July 1, 2018 implementation date for the new employer contribution rate.

Employer Contribution Rate with phase-in

At the December 2016 meeting, the Board of Investments adopted a three-year phase-in of the impact of the change in employer contribution rate resulting from the new assumptions adopted effective June 30, 2016. The total employer contribution rate with phase-in for each plan can be found in Exhibit 11b. These results are expressed as a percentage of payroll and annual contribution dollars.

For the fiscal year beginning in 2018, the total employer contribution rate with phase-in is 20.04%. This is equal to the calculated employer contribution rate with an offset for deferred recognition of the new assumptions, as follows.

(All values as a % of payroll)

Calculated Employer Contribution Rate	21.00%
Deferred recognition of new assumptions	<u>(0.96)%</u>
Employer Contribution Rate with phase-in	20.04%

Section II 1A(4) of the Funding Policy states: "In no case shall the total amount contributed by the employer be less than the Normal Cost Rate for the year, plus a 30-year amortization of the total UAAL." The employer contribution rate with phase-in of 20.04% is greater than the minimum contribution that would be required under Section II 1A(4) of the Funding Policy.

Hypothetical Population Used for Normal Cost Rate for New Plans

For plans that have been in existence for less than five years, the normal cost rate is calculated based on a hypothetical population which includes all current active members with less than five years of service, as if each of these members had entered the respective new plan (split by General and Safety).

The following table shows a comparison between what the normal cost rate would have been if it had been based on the current population only, and the normal cost rate based on the hypothetical smoothed population used in the valuation.

	Current Population	Smoothed Population
General Plan G		
Normal Cost Rate	16.80%	16.86%
Member Rate	8.40%	8.43%
Safety Plan C		
Normal Cost Rate	27.59%	27.74%
Member Rate	13.80%	13.87%

Exhibit 10 Calculated Normal Cost Contribution Rates – June 30, 2017

A. Normal Cost Contribution Rate	General							Safety				Grand
	Plan A	Plan B	Plan C	Plan D	Plan E	Plan G	Total	Plan A	Plan B	Plan C	Total	Total
Service Retirement	20.01%	14.46%	12.03%	13.38%	9.20%	14.31%	12.60%	15.51%	14.75%	15.48%	14.82%	13.02%
Disability Retirement	1.15%	0.77%	0.65%	1.17%	0.00%	1.29%	0.92%	9.83%	9.71%	11.23%	9.86%	2.61%
Death	0.28%	0.22%	0.19%	0.35%	0.00%	0.33%	0.27%	0.38%	0.30%	0.26%	0.30%	0.27%
Termination	0.36%	0.37%	0.33%	0.92%	0.54%	0.93%	0.83%	0.58%	0.70%	0.77%	0.71%	0.81%
Total	21.80%	15.82%	13.20%	15.82%	9.74%	16.86%	14.62%	26.30%	25.46%	27.74%	25.69%	16.70%
B. Member Contributions	(5.42)%	(7.88)%	(6.45)%	(7.41)%	0.00%	(8.43)%	(5.87)%	(2.29)%	(10.19)%	(13.87)%	(10.56)%	(6.76)%
C. Net Employer Normal Cost as of June 30, 2017 (A) - (B)	16.38%	7.94%	6.75%	8.41%	9.74%	8.43%	8.75%	24.01%	15.27%	13.87%	15.13%	9.94%
D. Net Employer Normal Cost as of June 30, 2016	15.87%	7.77%	7.07%	8.44%	9.84%	8.31%	8.79%	24.72%	15.03%	14.00%	14.97%	9.97%
E. Increase (Decrease) as a Percentage of Payroll (C) - (D)	0.51%	0.17%	(0.32)%	(0.03)%	(0.10)%	0.12%	(0.04)%	(0.71)%	0.24%	(0.13)%	0.16%	(0.03)%
F. Estimated Payroll for fiscal year beginning July 1, 2018*	\$ 18	\$ 6	\$ 6	\$ 3,869	\$ 1,492	\$ 1,103	\$ 6,494	\$ 1	\$ 1,354	\$ 153	\$ 1,508	\$ 8,001
G. Estimated Total Normal Cost Contribution in Dollars (A x F)**	\$ 4	\$ 1	\$ 1	\$ 612	\$ 145	\$ 186	\$ 949	\$ -	\$ 345	\$ 42	\$ 387	\$ 1,336

* Estimated Payroll based upon annualized salary rate as of June 30, 2017 increased by 3.25% wage inflation. Dollar figures in millions.

** The timing of the Normal Cost shown in this exhibit is spread over the entire year and corresponds to payroll timing.

Exhibit 11a Total Employer Contributions (without phase-in of new assumptions)

	General							Safety				All Plans
	Plan A	Plan B	Plan C	Plan D	Plan E	Plan G	Total	Plan A	Plan B	Plan C	Total	
A. Net Employer Normal Cost												
1. Basic Benefits	13.03%	6.33%	5.43%	6.89%	8.08%	6.83%	7.16%	17.39%	12.14%	10.80%	12.00%	8.07%
2. Cost-of-Living Benefits	3.35%	1.61%	1.32%	1.52%	1.66%	1.60%	1.59%	6.62%	3.13%	3.07%	3.13%	1.87%
3. Total June 30, 2017	16.38%	7.94%	6.75%	8.41%	9.74%	8.43%	8.75%	24.01%	15.27%	13.87%	15.13%	9.94%
B. UAAL Contribution Rate	11.06%	11.06%	11.06%	11.06%	11.06%	11.06%	11.06%	11.06%	11.06%	11.06%	11.06%	11.06%
C. Total June 30, 2017 Contribution Rate (A) + (B)	27.44%	19.00%	17.81%	19.47%	20.80%	19.49%	19.81%	35.07%	26.33%	24.93%	26.19%	21.00%
D. Total June 30, 2016 Contribution Rate	27.11%	19.01%	18.31%	19.68%	21.08%	19.55%	20.03%	35.96%	26.27%	25.24%	26.21%	21.21%
E. Estimated Payroll for fiscal year beginning July 1, 2018*	\$ 18	\$ 6	\$ 6	\$ 3,869	\$ 1,492	\$ 1,103	\$ 6,494	\$ 1	\$ 1,354	\$ 153	\$ 1,508	\$ 8,001
F. Estimated Annual Contribution (C x E)	\$ 5	\$ 1	\$ 1	\$ 753	\$ 310	\$ 215	\$ 1,286	\$ -	\$ 356	\$ 38	\$ 395	\$ 1,681
G. Last Year's Estimated Annual Contribution	\$ 6	\$ 2	\$ 1	\$ 754	\$ 319	\$ 155	\$ 1,237	\$ 1	\$ 358	\$ 23	\$ 382	\$ 1,619
H. Increase / (Decrease) in Annual Contribution	\$ (1)	\$ (1)	\$ -	\$ (1)	\$ (9)	\$ 60	\$ 49	\$ (1)	\$ (2)	\$ 15	\$ 13	\$ 62

* Estimated Payroll based upon annualized salary rate as of June 30, 2017 increased by 3.25% wage inflation. Dollar figures in millions.

Exhibit 11b Total Employer Contributions (with phase-in of new assumptions)

	General							Safety				All Plans
	Plan A	Plan B	Plan C	Plan D	Plan E	Plan G	Total	Plan A	Plan B	Plan C	Total	
A. Net Employer Normal Cost												
1. Basic Benefits	13.03%	6.33%	5.43%	6.89%	8.08%	6.83%	7.18%	17.39%	12.14%	10.80%	12.31%	8.07%
2. Cost-of-Living Benefits	3.35%	1.61%	1.32%	1.52%	1.66%	1.60%	1.57%	6.62%	3.13%	3.07%	2.82%	1.87%
3. Total June 30, 2017	16.38%	7.94%	6.75%	8.41%	9.74%	8.43%	8.75%	24.01%	15.27%	13.87%	15.13%	9.94%
B. UAAL Contribution Rate	11.06%	11.06%	11.06%	11.06%	11.06%	11.06%	11.06%	11.06%	11.06%	11.06%	11.06%	11.06%
C. Calculated June 30, 2017 Contribution Rate (A) + (B)	27.44%	19.00%	17.81%	19.47%	20.80%	19.49%	19.81%	35.07%	26.33%	24.93%	26.19%	21.00%
D. Deferred Recognition of new assumptions	(0.96)%	(0.96)%	(0.96)%	(0.96)%	(0.96)%	(0.96)%	(0.96)%	(0.96)%	(0.96)%	(0.96)%	(0.96)%	(0.96)%
E. Total June 30, 2017 Contribution Rate with phase-in (C) + (D)	26.48%	18.04%	16.85%	18.51%	19.84%	18.53%	18.85%	34.11%	25.37%	23.97%	25.23%	20.04%
F. Total June 30, 2016 Contribution Rate with phase-in	25.60%	17.50%	16.80%	18.17%	19.57%	18.04%	18.52%	34.45%	24.76%	23.73%	24.70%	19.70%
G. Estimated Payroll for fiscal year beginning July 1, 2018*	\$ 18	\$ 6	\$ 6	\$ 3,869	\$ 1,492	\$ 1,103	\$ 6,494	\$ 1	\$ 1,354	\$ 153	\$ 1,508	\$ 8,001
H. Estimated Annual Contribution (E x G)	\$ 5	\$ 1	\$ 1	\$ 716	\$ 296	\$ 204	\$ 1,224	\$ -	\$ 343	\$ 37	\$ 380	\$ 1,604
I. Last Year's Estimated Annual Contribution	\$ 6	\$ 1	\$ 1	\$ 696	\$ 296	\$ 143	\$ 1,144	\$ 1	\$ 337	\$ 22	\$ 360	\$ 1,504
J. Increase / (Decrease) in Annual Contribution	\$ (1)	\$ -	\$ -	\$ 20	\$ -	\$ 61	\$ 80	\$ (1)	\$ 6	\$ 15	\$ 20	\$ 100

* Estimated Payroll based upon annualized salary rate as of June 30, 2017 increased by 3.25% wage inflation. Dollar figures in millions.

Exhibit 12 Unfunded Actuarial Accrued Liability Detail

Unfunded Actuarial Accrued Liability - 30 Year Layered Amortization Detail							
Date Established	Description	Balance as of June 30, 2017	Interest on Balance	Amort. Payment on June 30, 2018 ⁽¹⁾	Balance as of June 30, 2018 ⁽²⁾	Remaining Period as of June 30, 2018	July 1, 2018 Amortization Payment
June 30, 2009	Initial UAAL	\$ 5,621.1	\$ 407.5	\$ 396.8	\$ 5,631.8	21 Years	\$ 389.9
June 30, 2010	(Gain) / Loss ⁽³⁾	3,049.4	221.1	209.3	3,061.2	22 Years	205.7
June 30, 2011	(Gain) / Loss ⁽³⁾	1,503.0	109.0	100.5	1,511.5	23 Years	98.7
June 30, 2012	(Gain) / Loss ⁽³⁾	2,444.8	177.2	159.4	2,462.6	24 Years	156.7
June 30, 2013	(Gain) / Loss ⁽³⁾	1,375.5	99.7	87.6	1,387.6	25 Years	86.1
June 30, 2014	(Gain) / Loss	(2,535.7)	(183.8)	(158.1)	(2,561.4)	26 Years	(155.3)
June 30, 2015	(Gain) / Loss	(1,972.9)	(143.0)	(120.5)	(1,995.4)	27 Years	(118.4)
June 30, 2016	(Gain) / Loss ⁽³⁾	3,776.4	273.8	226.2	3,824.0	28 Years	222.3
June 30, 2017	(Gain) / Loss	(116.6)	(8.5)	(106.7) ⁽⁴⁾	(18.4)	29 Years	(1.1)
Total Amortization Payment July 1, 2018:							\$ 884.6
Projected Payroll July 1, 2018:							\$ 8,000.8
UAAL as of June 30, 2017:		\$ 13,145.0	UAAL Contribution Rate (as a % of Payroll) FYB July 1, 2018:				11.06%

Explanatory Notes:

1. Amortization Payments are based on a fixed schedule that increases by the payroll assumption each year.
2. The assets and liabilities used in the calculation of the UAAL are as of June 30, 2017; whereas, the contribution rates are not effective until July 1, 2018. Therefore, the UAAL is adjusted to June 30, 2018 based on the actual contribution rate for the period.
3. (Gain) / Loss layers include impact of assumption changes in these years.
4. The 30-year amortization of UAAL does not begin until July 1, 2018; however, the UAAL amount is adjusted based on the July 1, 2017 contribution rate.

Section 7 Supplemental Information



Governmental Accounting Standards Board (GASB) Statement No. 67 sets out requirements for defined benefit pension plan reporting and disclosures. GASB Statement No. 68 sets out requirements for accounting by state and local government employers.

Milliman provides LACERA with results relevant to Statements No. 67 and 68 in separate stand-alone financial reporting valuation reports.

For informational purposes, we have provided the following exhibits in this report that LACERA may use in the audited financial statements:

1. Schedule of Funding Progress
2. Schedule of Employer Contributions
3. Solvency Test
4. Actuarial Analysis of Financial Experience
5. Retirants and Beneficiaries added to and removed from Retiree Payroll

The Schedule of Funding Progress, Exhibit 13, compares actuarial assets and liabilities of the system, based on the actuarial funding method used. The required Schedule of Employer Contributions, Exhibit 14, compares the employer contributions required based on the actuarial valuation with the employer contributions actually made. Information shown in this exhibit comes from LACERA's audited financial statements.

Exhibit 15 compares the Actuarial Value of Valuation Assets to the types of Actuarial Accrued Liabilities, applying them first to Active Member contributions, then to retirees and beneficiaries, and then the remaining amount to the Active Members benefits. This is referred to as the Solvency Test.

Exhibit 16 shows the changes in actual versus expected UAAL from year to year. Exhibit 17 reconciles the retired members and beneficiaries who have been added to and removed from the retiree payroll.

Exhibit 13 Schedule of Funding Progress
(All Dollars in Thousands)

Actuarial Valuation Date	(a) Actuarial Value of Valuation Assets	(b) Actuarial Accrued Liabilities	(b-a) Unfunded Actuarial Accrued Liabilities (UAAL)	(a/b) Funded Ratio	(c) Covered Payroll⁽¹⁾	[(b-a)/c] UAAL as a Percentage of Covered Payroll
June 30, 2008	39,662,361	41,975,631	2,313,270	94.5%	6,123,888	37.8%
June 30, 2009	39,541,865	44,468,636	4,926,771	88.9%	6,547,616	75.2%
June 30, 2010 ⁽²⁾	38,839,392	46,646,838	7,807,446	83.3%	6,695,439	116.6%
June 30, 2011 ⁽²⁾	39,193,627	48,598,166	9,404,539	80.6%	6,650,674	141.4%
June 30, 2012 ⁽²⁾	39,039,364	50,809,425	11,770,061	76.8%	6,619,816	177.8%
June 30, 2013 ⁽²⁾	39,932,416	53,247,776	13,315,360	75.0%	6,595,902	201.9%
June 30, 2014	43,654,462	54,942,453	11,287,991	79.5%	6,672,228	169.2%
June 30, 2015	47,328,270	56,819,215	9,490,945	83.3%	6,948,738	136.6%
June 30, 2016 ⁽²⁾	49,357,847	62,199,214	12,841,367	79.4%	7,279,777	176.4%
June 30, 2017	52,166,307	65,310,803	13,144,496	79.9%	7,637,032	172.1%

1. Covered Payroll includes compensation paid to all active employees on which contributions are calculated, as reported by LACERA. Covered Payroll differs from the Active Member Valuation Payroll shown in Table C-1, which is an annualized compensation of only those members who were active on the actuarial valuation date.

2. Assumption changes.

Exhibit 14 Schedule of Contributions from the Employer
(All Dollars in Thousands)

Fiscal Year Ending	Actuarially Determined Employer Contribution	Actual Employer Contributions			Percentage of Actuarially Determined Contribution Contributed
		Cash Payment	Transfer from Reserve Accounts	Total	
6/30/2008	\$ 827,911	\$ 788,029	\$ 40,601	\$ 828,630	100%
6/30/2009	847,172	831,672	15,500	847,172	100%
6/30/2010	843,704	843,703	0	843,703	100%
6/30/2011	944,174	944,174	0	944,174	100%
6/30/2012	1,078,929	1,078,929	0	1,078,929	100%
6/30/2013	1,172,014	723,195	448,819	1,172,014	100%
6/30/2014	1,320,442	1,320,442	0	1,320,442	100%
6/30/2015	1,494,975	1,494,975	0	1,494,975	100%
6/30/2016	1,443,130	1,443,130	0	1,443,130	100%
6/30/2017	1,370,922	1,370,922	0	1,370,922	100%

Exhibit 15 Solvency Test
(Dollars in Millions)

Actuarial Valuation Date	Actuarial Value of Valuation Assets	Actuarial Accrued Liabilities for			Portion of Actuarial Accrued Liabilities Covered by Assets		
		Active Member Contributions (A)	Retirees and Beneficiaries ⁽¹⁾ (B)	Active Members (Employer Financed Portion) (C)	(A)	(B)	(C)
June 30, 2008	39,662	5,279	23,730	12,966	100%	100%	82%
June 30, 2009	39,542	5,795	24,692	13,982	100%	100%	65%
June 30, 2010	38,839	6,278	26,220	14,148	100%	100%	45%
June 30, 2011	39,194	6,529	27,559	14,511	100%	100%	35%
June 30, 2012	39,039	6,961	29,118	14,730	100%	100%	20%
June 30, 2013	39,932	7,837	30,980	14,430	100%	100%	8%
June 30, 2014	43,654	8,354	31,882	14,706	100%	100%	23%
June 30, 2015	47,328	8,805	32,734	15,280	100%	100%	38%
June 30, 2016	49,358	8,767	35,316	18,116	100%	100%	29%
June 30, 2017	52,166	9,482	37,077	18,752	100%	100%	30%

1. Includes vested and non-vested former members.

Exhibit 16 Actuarial Analysis of Financial Experience
(Dollars in Millions)

	Valuation as of June 30					
	2012	2013	2014	2015	2016	2017
Unfunded Actuarial Accrued Liability	\$9,405	\$11,770	\$13,315	\$11,288	\$9,491	\$12,841
Expected Increase/(Decrease) from						
Prior Valuation	772	1,380	338	(54)	2,820	320
Salary Increases Greater/(Less) than Expected	(629)	(563)	(291)	79	162	277
CPI Less than Expected	(181)	(190)	(427)	(570)	(191)	(139)
Asset Return Less/(Greater) than Expected	2,337	893	(1,664)	(1,263)	496	(421)
All Other Experience	66	25	17	11	63	267
Ending Unfunded Actuarial						
Accrued Liability	\$11,770	\$13,315	\$11,288	\$9,491	\$12,841	\$13,145

Exhibit 17 Retirants and Beneficiaries added to and removed from Retiree Payroll
(Dollars in Thousands)

Valuation Date	Added to Rolls		Removed from Rolls		Rolls at End of Year		% Increase in Retiree Allowance	Average Annual Allowance
	Member Count	Annual Allowance ⁽¹⁾	Member Count	Annual Allowance ⁽¹⁾	Member Count	Annual Allowance ⁽¹⁾		
June 30, 2008	2,759	167,753 ⁽²⁾	(1,801)	(47,103)	52,350	1,978,875	6.49%	37.8
June 30, 2009	2,505	157,469 ⁽²⁾	(1,786)	(50,619)	53,069	2,085,725	5.40%	39.3
June 30, 2010	2,947	188,724 ⁽²⁾	(1,820)	(54,105)	54,196 ⁽³⁾	2,220,344	6.45%	41.0
June 30, 2011	3,134	185,204 ⁽²⁾	(1,959)	(62,923)	55,371	2,342,625	5.51%	42.3
June 30, 2012	3,194	193,865 ⁽²⁾	(1,795)	(61,588)	56,770 ⁽³⁾	2,474,902	5.65%	43.6
June 30, 2013	3,373	205,659 ⁽²⁾	(2,057)	(69,494)	58,086 ⁽³⁾	2,611,067	5.50%	45.0
June 30, 2014	3,128	172,743 ⁽²⁾	(1,985)	(71,730)	59,229 ⁽³⁾	2,712,080	3.87%	45.8
June 30, 2015	3,501	180,549 ⁽²⁾	(2,124)	(80,028)	60,606 ⁽³⁾	2,812,601	3.71%	46.4
June 30, 2016	3,479	220,632 ⁽²⁾	(2,171)	(80,881)	61,914 ⁽³⁾	2,952,352	4.97%	47.7
June 30, 2017	3,721	245,915 ⁽²⁾	(2,311)	(89,624)	63,324 ⁽³⁾	3,108,643	5.29%	49.1

1. Annual allowance is the monthly benefit allowance annualized for those members counted as of June 30.
2. Includes COLAs that occurred during the fiscal year and therefore were not included in the previous years' Annual Allowance totals.
3. For the actuarial valuation year, Member Count includes retirees who due to timing at year end, are not yet included in the total Retired Members count disclosed in Note A - Plan Description of the CAFR.

Section 8 Cash Flow History and Projections



Cash Flow Projection

Exhibits 18a and 18b contain tables and graphs that illustrate both the cash flow history for the past 10 years and a projection on the valuation basis for the next 10 years.

Contributions include both employer and member contributions. Exhibit 18a shows that net cash flow has been fairly level over the last five years. In future years, the cash flow is expected to become increasingly negative. This is a typical pattern for a mature retirement system where it is expected that contributions will be less than benefits and that the system will begin drawing on the fund that has been built up over prior years.

Note that the actual cash contributions do not reflect the transfers made between reserve funds, but only cash coming into the system. We are assuming no further transfers, only full cash contributions.

The projected cash flows include contributions, statutory benefits, and administrative expenses only. They are based on the actuarial assumptions as stated in Appendix A of this valuation report. The total employer contribution rate is assumed to be 19.70% for the first year and 20.04% for the second year; total employer contributions for the remainder of the period reflect the expected recognition of asset losses currently being deferred. The aggregate member rate is assumed to stay at the calculated rate for June 30, 2017 of 6.76% of payroll. Expenses are based on the expenses for the year ended June 30, 2017, increased annually with the actuarial inflation assumption of 2.75%.

Any increases or reductions in future contribution rates will increase or decrease the net cash flow. The projected cash flows do not include:

- Projected STAR benefits that have not yet been granted. STAR benefits that were vested as of January 2017 are included.
- Projected benefits payable under certain insurance contracts for a group of retired members. These payments are netted against the total expected retiree benefits.

Exhibit 18a Cash Flow History and Projections – Dollars

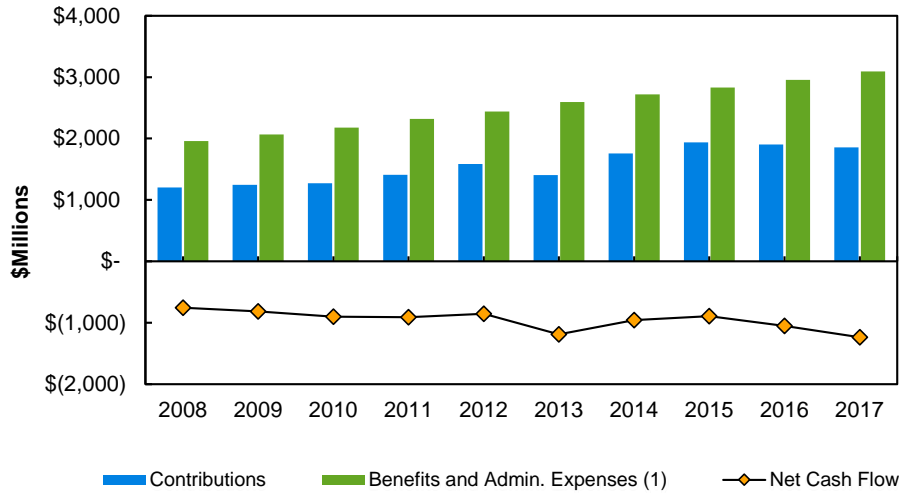
Plan Year Ending	Cash Flow History		
	Total Contributions	Benefits & Administrative Expenses ⁽¹⁾	Net Cash Flow
2008	\$ 1,203	\$ 1,960	\$ (757)
2009	1,247	2,065	(818)
2010	1,273	2,177	(904)
2011	1,408	2,318	(910)
2012	1,586	2,439	(853)
2013	1,403	2,593	(1,190)
2014	1,759	2,719	(960)
2015	1,936	2,829	(893)
2016	1,902	2,954	(1,052)
2017	1,858	3,094	(1,236)

Plan Year Ending	Cash Flow Projections ⁽²⁾		
	Total Contributions	Benefits & Administrative Expenses ⁽¹⁾	Net Cash Flow
2018	\$ 2,042	\$ 3,373	\$ (1,331)
2019	2,149	3,474	(1,325)
2020	2,294	3,648	(1,354)
2021	2,407	3,827	(1,419)
2022	2,502	4,015	(1,513)
2023	2,554	4,212	(1,658)
2024	2,643	4,420	(1,776)
2025	2,736	4,634	(1,898)
2026	2,832	4,852	(2,021)
2027	2,931	5,074	(2,143)

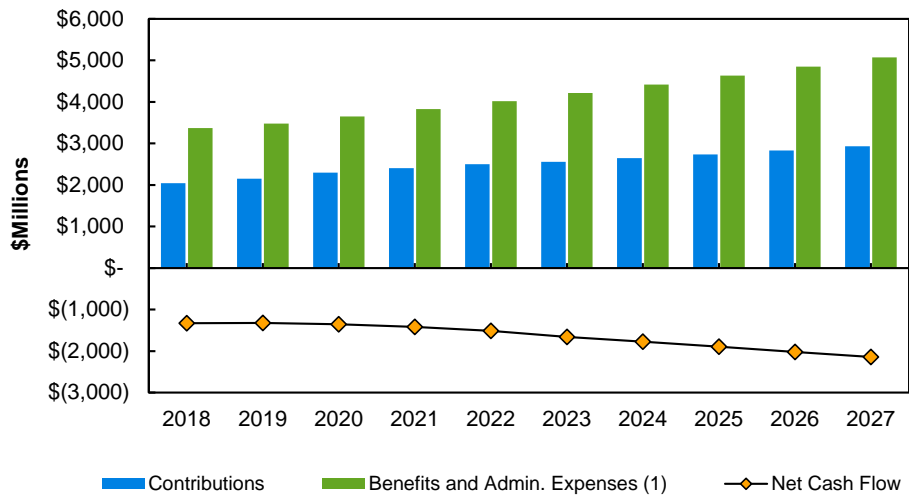
1. Investment expenses are assumed to be covered by investment return.
2. Future contributions reflect the expected impact of asset gains and losses currently being deferred.

Exhibit 18b Cash Flow History and Projections – Charts

Cash Flow History



Cash Flow Projections⁽²⁾



1. Investment expenses are assumed to be covered by investment return.
2. Future contributions reflect the expected impact of asset gains and losses currently being deferred.